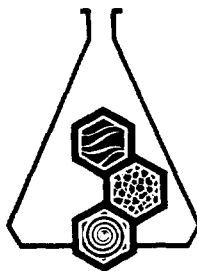


Hand - for U.S.  
Police Joint Program to be  
Other Law Enforcement  
Consideration to join Texas Comm. 1104  
2-7-70

154084  
2/7/72  
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D. W. RYCKMAN  
E. EDGERLEY JR.  
H. D. TOMLINSON  
S. J. RYCKMAN



File 1104

CONSULTANTS IN WATER, SOLIDS AND AIR RESOURCES

**RYCKMAN · EDGERLEY · TOMLINSON and ASSOCIATES**

500 CORONET BUILDING • 225 SOUTH MERAMEC AVENUE • SAINT LOUIS, MISSOURI 63105

TELEPHONE: 781-4118 • 786-2134 • 784-2424

January 29th, 1970  
R.E.T.A.-619-D

Mr. Ralph O. Wigger  
Development Manager  
Cerro Copper & Brass Company  
Division of Cerro Corporation  
St. Louis Works  
Post Office Box 681  
East St. Louis, Illinois 62202

Dear Mr. Wigger:

Pursuant to your request please find enclosed two (2) copies of a proposal entitled, "Waste-Water Studies For Cerro Copper & Brass Company".

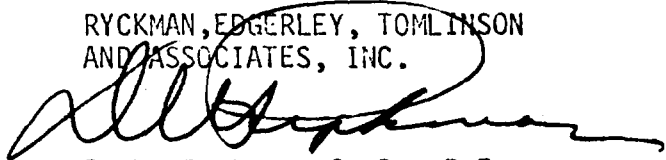
As discussed in our joint conferences, the objective of this engineering evaluation will be:

1. Determine the quantity and quality of the total waste-water discharged from Cerro Copper & Brass Company, St. Louis Works, Sauget, Illinois.
2. Establish a base line of information for immediate and future reference regarding possible product recovery, surcharge verification, and abatement efficiency.
3. Recommend a monitoring program of the waste-water discharges from the plant.

If you have any questions regarding this proposal, please do not hesitate to contact us. We are prepared to provide supplemental information upon your request. We are looking forward to the opportunity presented by this most interesting assignment.

Very truly yours,

RYCKMAN, EDGERLEY, TOMLINSON  
AND ASSOCIATES, INC.

  
D. W. Ryckman, Sc.D., P.E.  
President

DWR:Smw

Enclosures

c.c. Mr. Paul Tandler, Technical Manager ✓  
Dr. H. D. Tomlinson - Vice President, R.E.T.A.  
Dr. George M. Barsom - Senior Associate, R.E.T.A.

C03359

PROPOSAL

WASTE-WATER STUDIES

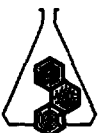
for

CERRO COPPER & BRASS COMPANY  
Division of Cerro Corporation

January 29th, 1970

R.E.T.A.-619-D

C03360



**RYCKMAN · EDGERLEY · TOMLINSON and ASSOCIATES**

500 CORONET BUILDING • 225 SOUTH MERAMEC AVENUE • SAINT LOUIS, MISSOURI 63105

TELEPHONE: (314) 862-3424

## I. OBJECTIVE

On January 20th, 1970, Cerro Copper & Brass Company requested a proposal from Ryckman, Edgerley, Tomlinson and Associates, Inc. (R.E.T.A.) for a study of the waste-water from the St. Louis' Works Plant. Broadly stated the objectives of the proposed engineering evaluation will be:

1. Determine the quantity and quality of the total waste-water discharged from Cerro Copper & Brass Company.
2. Establish a base line of materials discharged in the sewers for immediate and future reference regarding possible product recovery, surcharge verification, and abatement efficiency.
3. Recommend a waste-water monitoring program at the plant.

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## II. SCOPE OF PROPOSED STUDY

Based on information obtained during the conference with Cerro Copper & Brass officials, it is proposed to obtain composite samples from five (5) waste lines from the plant. These waste lines are identified as follows:

1. Mississippi Avenue Sewer
2. Low line sewer
3. Interceptor Sewer (rear of plant)
4. Iron tank effluent
5. Reservoir pond overflow

The first three sewers listed above comprise the total plant discharge to the Village of Sauget sewer system. The latter two waste lines are significant sources of discharges and are to be included in the plant study.

Information to be obtained at the plant during the study include the following:

1. Determination of total flow and variability of flow at each location during study period.
2. Variation of temperature and pH at each location during sampling period.
3. Collection of samples on a continuous basis at each location for laboratory analysis and evaluation.

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4. Evaluation of pertinent physical features at plant which would have an effect on the development of a continuing monitoring program.

The waste-water samples will be collected on a continuous basis and will be composited by eight hour shifts for laboratory characterization. Laboratory analyses which will be made on the composited samples include the following:

1. Acidity
2. Alkalinity
3. pH
4. Suspended Solids
5. Organic Content
6. Chromium
7. Copper
8. Zinc
9. Oil and Grease
10. Total Iron
11. Lead
12. Phosphates
13. Chlorides
14. Sulfates

Where applicable the hourly composites will be analyzed for selected parameters.

As requested by Company officials, the sampling period may extend from three days to as many as ten days. The cost estimates for alternate number of days of sampling, laboratory analyses, and related work are included in a later section.

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At the completion of the field and laboratory studies, a summary report will be prepared which will include the field and laboratory information. The quantities of materials discharged at the present time will be compared with results from previous waste-water studies at the plant. Also, a recommended program of waste-water monitoring will be developed for consideration by Cerro Copper & Brass Company.

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### III. COOPERATION BY CERRO COPPER & BRASS COMPANY

Project efficiency will depend, in part, on the timely and complete communication of the required information from Cerro Copper & Brass Company to R.E.T.A. If the needed data involves the disclosure of proprietary information this will, of course, be handled on a confidential basis. The requested cooperation from Cerro Copper & Brass Company will generally involve the following:

1. Provide an engineering contact who is experienced with the plant and the project objectives. He will be responsible for providing clearances for plant entry, liason with plant officials and operating personnel, and obtaining drawings, production information, and any other information which may be required.
2. Provide local services including appropriate utilities for efficient collection of waste-water samples (except electricity at Mississippi Ave. Sewer). Also provide manpower for construction and installation of weirs after they have been designed by R.E.T.A.
3. Provide other services and functions as deemed necessary for the efficient completion of the engineering evaluation.

#### IV. STATEMENT OF QUALIFICATIONS

Ryckman, Edgerley, Tomlinson and Associates (R.E.T.A.) recently received an honor which typified the overall engineering excellence which clients can expect. In May of 1969, R.E.T.A. was selected as the Grand National Award winner in the Engineering Excellence awards competition conducted by the United States Consulting Engineers Council. This award was presented for a steady state waste treatment system designed and developed by R.E.T.A. for UNIROYAL Chemical Company. The Steady State System and automated monitoring instrumentation recently went into operation at a site near Baton Rouge, Louisiana, and has been working very successfully.

Ryckman, Edgerley, Tomlinson and Associates has been actively serving environmental and sanitary engineering needs from St. Louis offices for over ten years. R.E.T.A.'s staff is comprised of professional engineers and scientists whose specialties encompass the full spectrum of pollution control. In addition to extensive experience and numerous graduate degrees in sanitary and environmental engineering, the personnel of the firm have background experience and degrees in related disciplines of mechanical and civil engineering and analytical chemistry. In our judgment, it is this wealth of experience that will allow Cerro Copper & Brass Company to have confidence in the recommendations resulting from the waste-water study and proposed monitoring system proposed by R.E.T.A.

## V. ESTIMATE OF TIME AND COSTS

The estimated time from authorization to the completion of the proposed work, including report preparation is eight (8) weeks.

The estimated costs for conducting the proposed study (using a three (3) day sampling period) are \$ 8,600.00 with a not to exceed cost of \$ 9,500.00 plus estimated reimbursable expenses of \$ 350.00. The estimated cost of each additional day of sampling with related laboratory analysis and evaluation is \$ 1,200.00 with a not to exceed cost of \$ 1,400.00 plus \$ 100.00 of reimbursable expenses.

Billings for professional services would be as follows:

- (a) Initial payment of 25% of basic estimate (\$ 2,150.00) upon authorization.
- (b) Monthly statements for professional services (as outlined below) with credit given Cerro Copper and Brass for the initial payment on the first two (2) statements.

Charges for professional services are calculated as follows:

### A. Personnel Costs -

Principal	\$ 20.00 per hour
Senior Associate	\$ 12.00 per hour
Associate	\$ 8.00 per hour
Assistant	\$ 6.00 per hour
Supporting Staff	\$ 4.00 per hour

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B. Overhead -

Multiplier of 2.3 applied to  
total Personnel costs

C. Profit -

15%

D. Reimbursable Expenses -

E. Total Statement (sum of items A through D)

Reimbursable expenses which consist of such items as report reproduction, telephone calls, rental of special equipment, and travel charges will be billed with no additional charge by R.E.T.A.

The above cost estimates are based upon project authorization prior to March 1st, 1970, and completion of the field study within the second quarter of 1970, as specified by Cerro Copper & Brass Company.